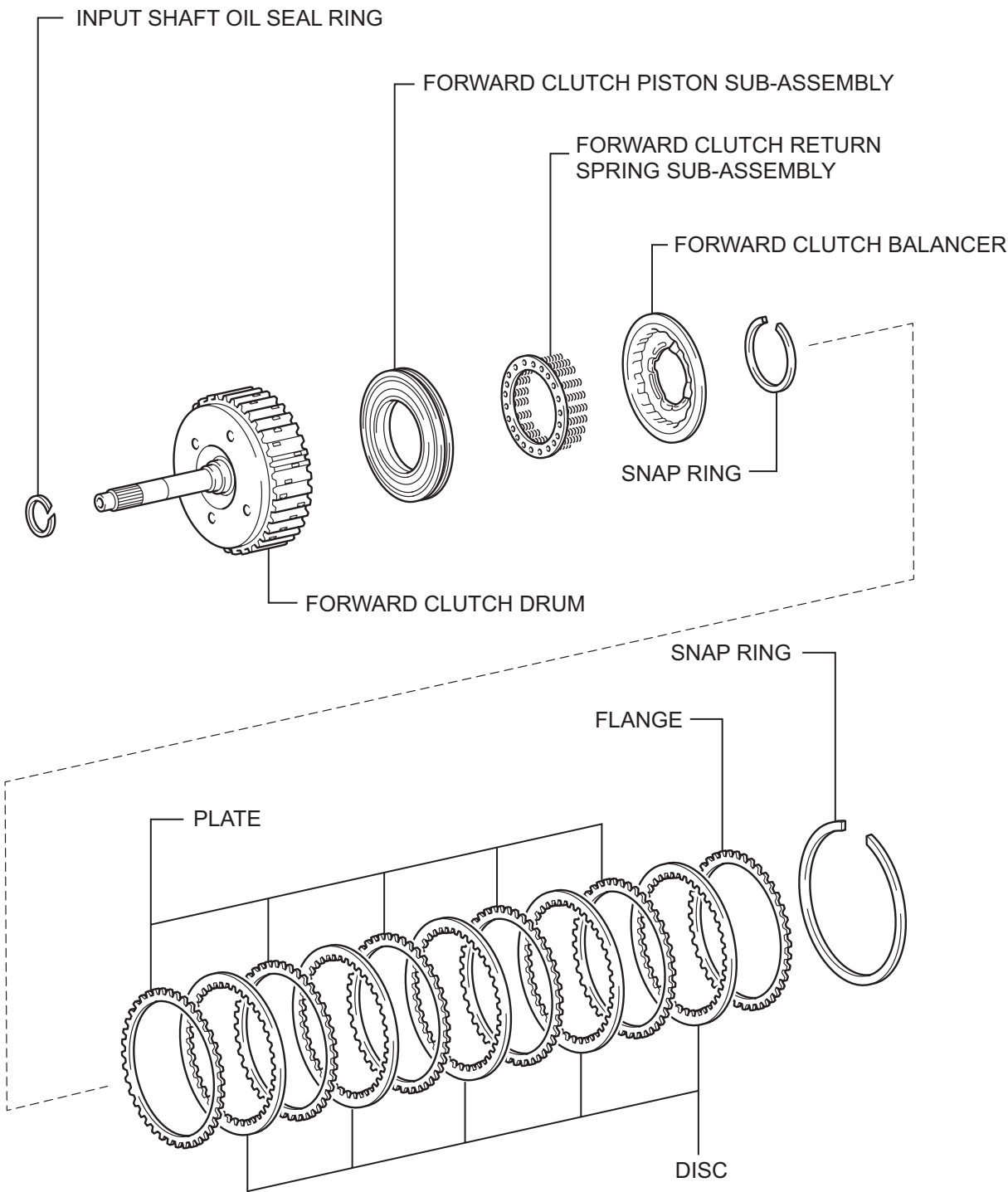


# FORWARD CLUTCH

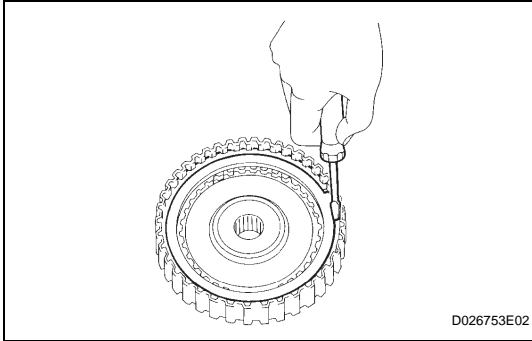
## COMPONENTS

AX



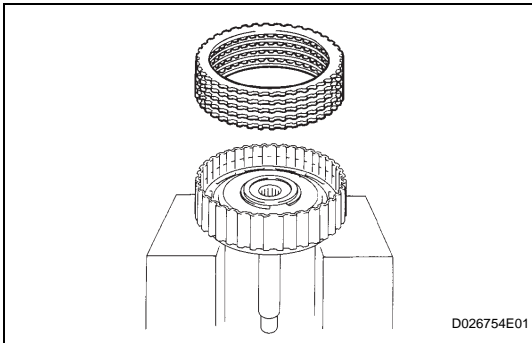
## DISASSEMBLY

### 1. INSPECT PACK CLEARANCE OF FORWARD CLUTCH (See page AX-256)

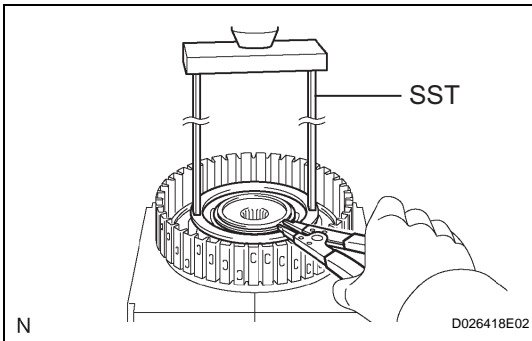


### 2. REMOVE FORWARD MULTIPLE DISC CLUTCH DISC

- (a) Using a screwdriver, remove the snap ring.



- (b) Remove the flange, 5 discs and 5 plates from the forward clutch drum.



### 3. REMOVE FORWARD CLUTCH RETURN SPRING SUB-ASSEMBLY

- (a) Place SST on the spring retainer and compress the return spring with a press.

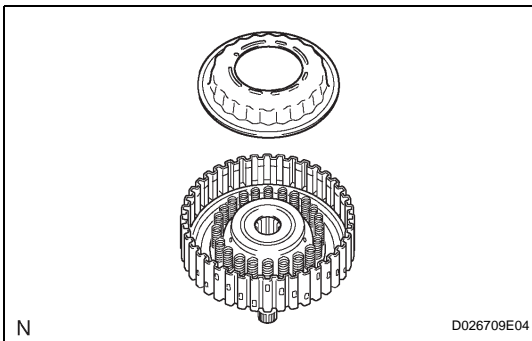
**SST 09387-00020**

- (b) Using a snap ring expander, remove the snap ring.

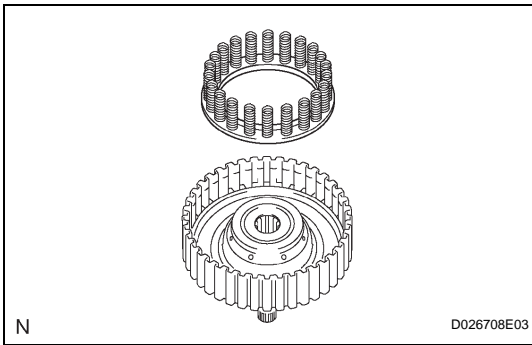
**NOTICE:**

- Stop the press when the spring seat is lowered to a position 1 to 2 mm (0.039 to 0.078 in.) from the snap ring groove to prevent the spring seat from being deformed.
- Do not expand the snap ring excessively.

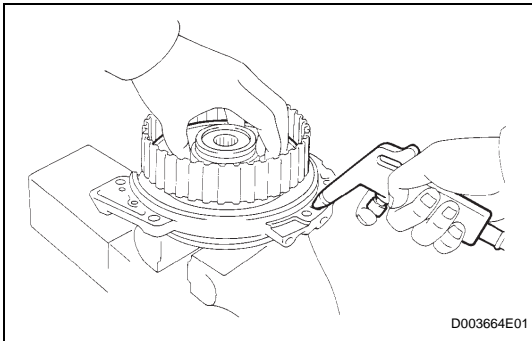
- (c) Remove the clutch balancer from the forward clutch drum.



AX



- (d) Remove the forward clutch return spring from the input shaft.

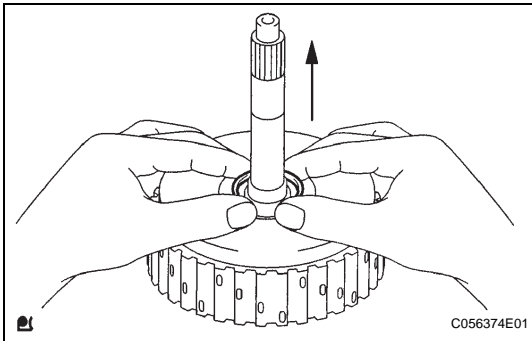


#### 4. REMOVE FORWARD CLUTCH RETURN SPRING SUB-ASSEMBLY

- (a) Place the forward clutch drum onto the oil pump.  
 (b) Holding the forward clutch piston by hand, apply compressed air (392 kPa, 4.0 kgf/cm<sup>2</sup>, 57 psi) to the oil pump to remove the forward clutch piston.

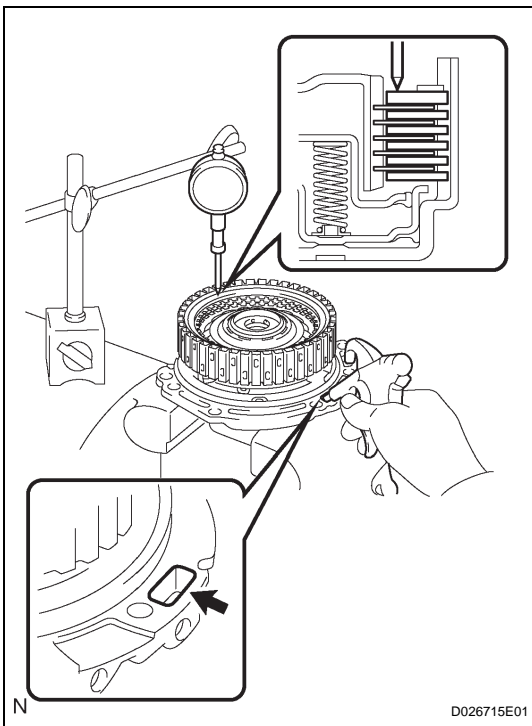
##### HINT:

When the piston cannot be removed because it is slanted, blow air again with the protruding side pushed, or remove the piston using needle nose pliers with vinyl tape on the tip.



#### 5. REMOVE INPUT SHAFT OIL SEAL RING

- (a) Remove the input shaft oil seal ring from the input shaft.



## INSPECTION

#### 1. INSPECT PACK CLEARANCE OF FORWARD CLUTCH

- (a) Install the forward clutch on the oil pump.

##### NOTICE:

**Be careful not to damage the oil seal ring of the oil pump.**

- (b) Using a dial indicator, measure the forward clutch pack clearance while applying and releasing compressed air (392 kPa, 4.0 kgf/cm<sup>2</sup>, 57 psi).

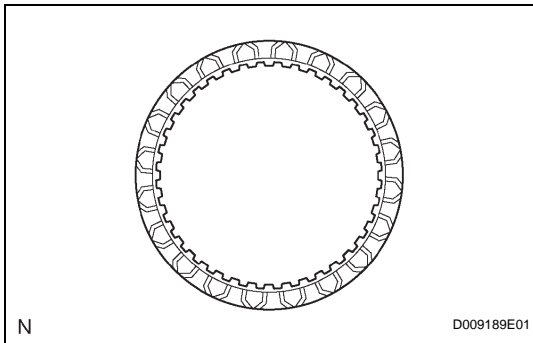
##### Standard pack clearance:

**1.00 to 1.25 mm (0.0394 to 0.4921 in.)**

If the clearance is not as specified, inspect the discs, plates and flange.

##### HINT:

If the opening is large, cover it with a piece of cloth to prevent the compressed air from being released.

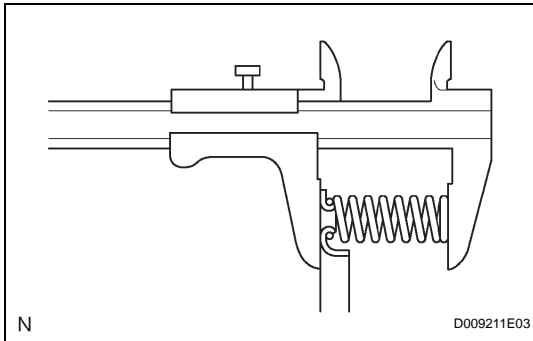


## 2. INSPECT FORWARD MULTIPLE DISC CLUTCH DISC

- (a) Check if the sliding surface of the disc, plate and flange are worn or burnt.  
If necessary, replace them.

### NOTICE:

- If the lining of the disc comes off or is discolored, or if a part of the groove is worn, replace all the discs.
- Before installing new discs, immerse them in ATF for at least 15 minutes.

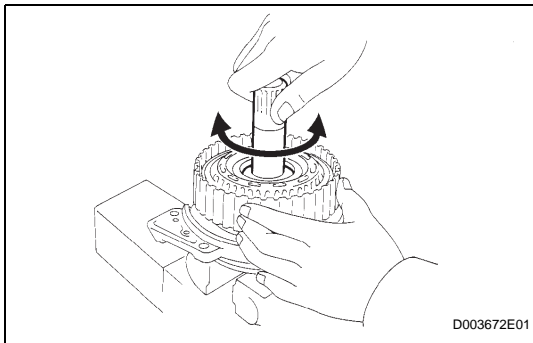


## 3. INSPECT FORWARD CLUTCH RETURN SPRING SUB-ASSEMBLY

- (a) Using a vernier caliper, measure the free length of the spring together with the spring seat.

**Standard free length:**

**26.74 mm (1.0528 in.)**

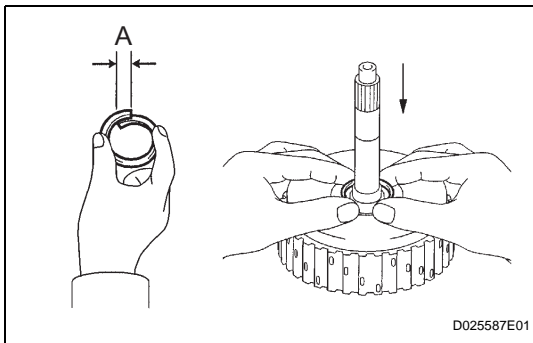


## 4. INSPECT FORWARD MULTIPLE DISC CLUTCH DISC

- (a) Check if the disc lightly rotates when rotating the forward clutch after inserting the multiple disc clutch into it.

### NOTICE:

**Do not place the forward clutch in a vise.**



## REASSEMBLY

### 1. INSTALL INPUT SHAFT OIL SEAL RING

- (a) Compress a new input shaft oil seal ring from both sides to reduce dimension A.

**Dimension A:**

**5.0 mm (0.197 in.)**

- (b) Coat the oil seal ring with ATF and install it to the forward clutch drum.

### NOTICE:

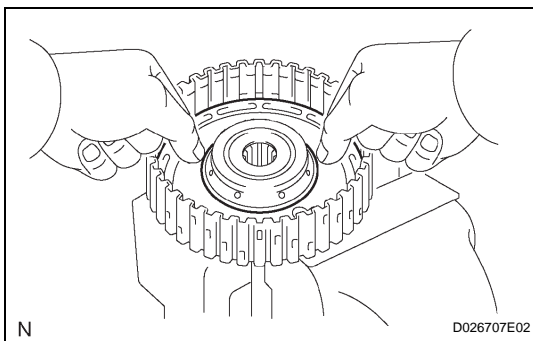
**Do not expand the end gap of the oil seal ring too much. Fix the hooks firmly.**

### 2. INSTALL FORWARD CLUTCH PISTON SUB-ASSEMBLY

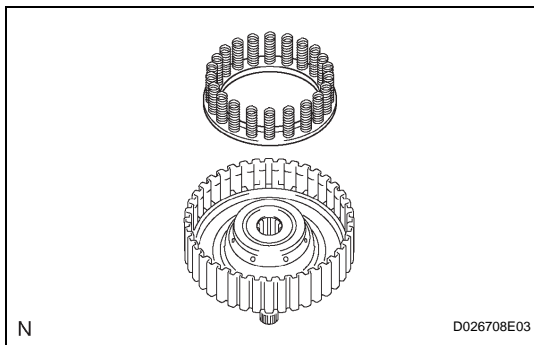
- (a) Coat the forward clutch piston with ATF, and install it to the forward clutch drum.

### NOTICE:

**Be careful not to damage the lip of the forward clutch piston.**



AX



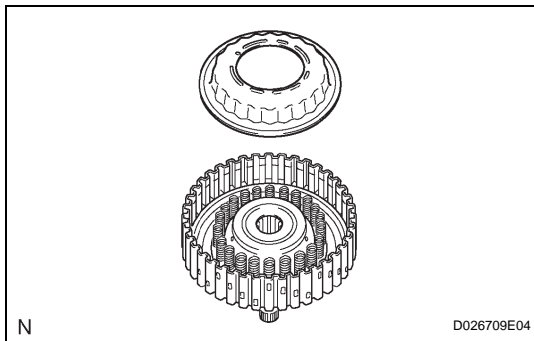
### 3. INSTALL FORWARD CLUTCH RETURN SPRING SUB-ASSEMBLY

- (a) Install the return spring to the forward clutch drum.

**NOTICE:**

**After installing the spring, check that all of the springs fit in the piston correctly.**

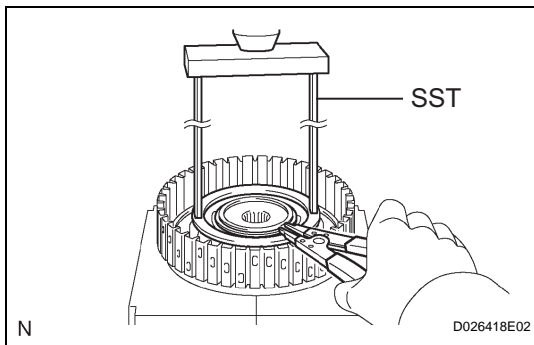
- (b) Coat the clutch balancer with ATF.



- (c) Install the clutch balancer to the forward clutch drum.

**NOTICE:**

- Be careful not to damage the lip of the forward clutch balancer.
- Make sure that the clutch balancer is not pinched and that there are no other defects on the lip.
- Apply sufficient ATF to the sealing lip before installation.



- (d) Place SST on the clutch balancer, and compress the clutch balancer with a press.

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- (e) Install the snap ring with a snap ring expander.  
 (f) Be sure that the end gap of the snap ring is not aligned with the spring retainer claw.

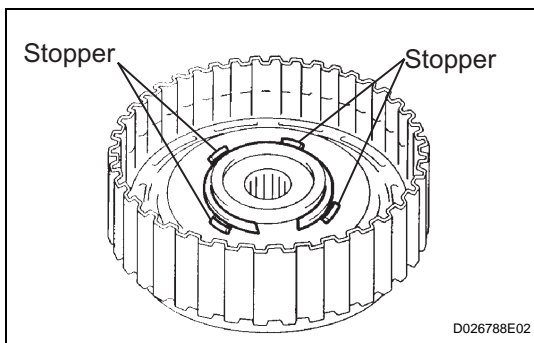
**NOTICE:**

- Stop the press when the spring seat is lowered to a position 1 to 2 mm (0.039 to 0.078 in.) from the snap ring groove. This prevents the spring seat from being deformed.
- Do not expand the snap ring excessively.

- (g) Set the end gap of the snap ring in the piston as shown in the illustration.

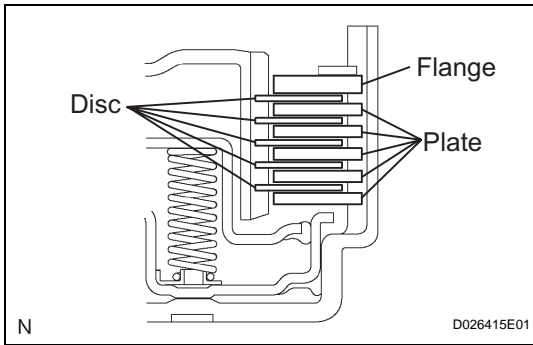
**NOTICE:**

**The end gap of the snap ring should not align with any of the stoppers.**



### 4. INSTALL FORWARD MULTIPLE DISC CLUTCH DISC

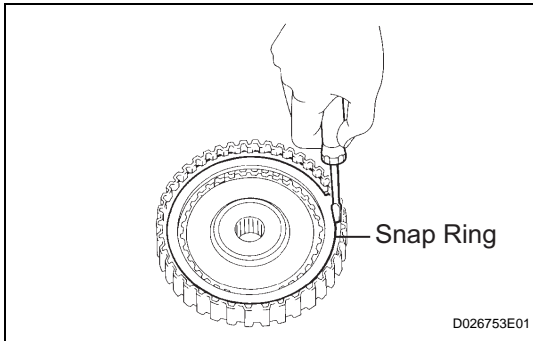
- (a) Coat the 5 discs with ATF.



- (b) Install the 5 plates, 5 discs and flange to the forward clutch drum.

**NOTICE:**

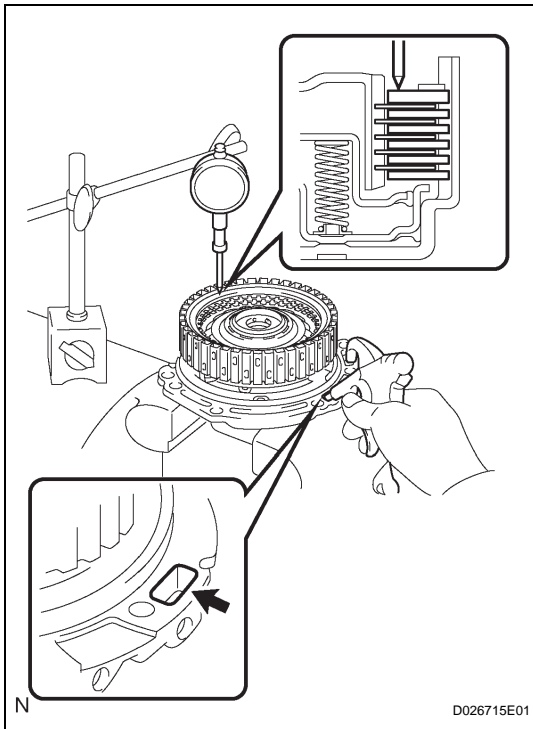
**Make sure that the plates, discs, and flange are installed as shown in the illustration.**



- (c) Using a screwdriver, install the snap ring.  
 (d) Check that the end gap of the snap ring is not aligned with one of the cutouts.

**NOTICE:**

**The snap ring should be fully engaged in the groove of the drum.**



## 5. INSPECT PACK CLEARANCE OF FORWARD CLUTCH

- (a) Using a dial indicator, measure the forward clutch pack clearance while applying and releasing compressed air (392 kgf/cm<sup>2</sup>, 4.0 kPa, 57 psi).

**Pack clearance:**

**1.00 to 1.25 mm (0.0394 to 0.4921 in.)**

If the piston stroke is less than the minimum, parts may be assembled incorrectly. Check and reassemble the parts again.

If the clearance is not as specified, select another flange.

**HINT:**

There are 5 different thicknesses of flanges available.

**Standard flange thickness**

No.	Thickness	No.	Thickness
1	3.00 mm (0.1181 in.)	4	3.45 mm (0.1358 in.)
2	3.15 mm (0.1240 in.)	5	3.60 mm (0.1417 in.)
3	3.30 mm (0.1299 in.)	-	-

## 6. INSPECT FORWARD MULTIPLE DISC CLUTCH DISC (See page [AX-257](#))